



Department of Public Works
111 Maryland Avenue, Rockville, MD 20850-2364

STORMWATER MANAGEMENT CONSTRUCTION NOTES

General

1. The Contractor must contact the following prior to beginning work: **City Department of Public Works Inspector as listed on permit; City Utilities Section at 240-314-8567; City Transportation Division (traffic signal and streetlight locates) at 240-314-8500; and Miss Utility at 1-800-257-7777, 48 hours before excavating.**
2. Information concerning existing underground utilities was obtained from available records. The Contractor must determine the exact location and elevation of existing utilities by digging test pits, by hand, at all utility crossings well in advance of trenching. If clearance is less than shown on this plan, contact the Design Engineer before proceeding with construction.
3. All work and materials for construction shall be in accordance with the latest general specifications and standard details of the Maryland State Highway Administration, Montgomery County, Maryland Department of the Environment Stormwater Design Manual and NRCS-MD No. 378 Pond Standards/Specifications. All sand used in SWM facilities must be washed silica sand. Limestone sand is unacceptable.
4. Shop drawings must be reviewed and approved by a Maryland Professional Engineer prior to fabrication. Provide three (3) copies of approved shop drawings to the City at least 48 hours prior to construction. Standard pre-cast structures previously approved by the Maryland State Highway Administration and Montgomery County are acceptable without engineer approval.
5. Use actual field soils data for design of pipes and structures. In absence of geotechnical information, use a minimum soil bearing pressure of 2,000-lb./sq. ft. All pipes and structures in paved areas shall be designed for H-20 vehicle loading.
6. The City Inspector and soils engineer must approve all backfill material prior to placement. Fill material shall be placed in layers not to exceed 8 inches and compacted to 95% AASHTO T-99, Method C with correct moisture content. The material must completely fill all spaces under and adjacent to the structure or pipe. For SWM embankments, the Contractor shall scarify each lift with a sheepsfoot roller or claw to a minimum depth of 2" prior to placing the next lift. Contractor shall scarify embankments parallel with the centerline of the dam core and perpendicular to the principal spillway. Bedding to be provided in accordance with details indicated on the construction drawings. Contractor shall supply the City Inspector with certified compaction test results from an independent tester.

7. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall the Contractor drive equipment over any part of a corrugated metal pipe unless there is a compacted fill of 24 inches or greater over the structure or pipe.
8. Sheet piling and shoring and compliance with OSHA standards shall be the responsibility of the Contractor. Drawings shall be certified by a Maryland professional engineer and submitted to the City Inspector for informational purposes only.
9. Care of Water During Construction – All work on permanent structures shall be carried out in areas free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent work. The Contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served its purpose, all temporary protective work shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet and so as not to interfere, in any way, with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent work.

The removal of water from the required excavation and/or foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavation and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations, which may require draining the water to sumps from which the water shall be pumped. An exception to this will be made when compacting a filter diaphragm under a SWM structure barrel; it is acceptable to flood the sand diaphragm with water to enhance compaction.

10. Silt and debris shall not be allowed to enter any SWM storage or control structure. Runoff shall not enter structures until the contributing drainage areas have been stabilized. All openings shall be protected with appropriate sediment control measures during construction. Where storm drain pipes convey construction runoff to sediment control traps or basins, the pipes shall be flushed clean at the end of construction prior to the removal of the sediment control trap/basin. Under no circumstances should water be discharged without using proper dewatering procedures.
11. Upon completion of construction, the applicant shall provide 3 sets of red lined As-Built prints for review and approval by DPW Engineering Division. The drawings must contain the original approval signatures and Professional Engineer's seal and signature, but may be noted as 'for design only' if desired. Upon receipt of written approval, applicant shall provide approved As-Built mylar drawings to the City of Rockville, certified by a Professional Engineer, prior to the release of the permit. The approved As-Built plan shall be submitted as mylars (24" x 36") with the As-Built Certification completed and sealed by a Maryland Professional Engineer.

Concrete

1. Concrete shall conform to the specifications of the Maryland State Highway Administration Mix No. 3, $f'c = 3,500$ lb./sq. inch at 28 days. Concrete construction shall conform to MSHA specifications, Section 305. No admixtures containing calcium chloride are permitted. Contractor shall supply the City Inspector with certified concrete strength results from an independent tester.
2. Reinforcing steel to be ASTM A615, Grade 60. Epoxy coated reinforcing shall conform to ASTM A775. Minimum steel spacing requirement to be ACI 350, $A_s = 0.003 bh$ at maximum rebar spacing of 12". Minimum concrete cover over steel is 2" for walls or slabs; 3" for base slabs cast against earth or mud mat. Wall thickness and clear distance to reinforcing shall be as shown on the drawings. All bars to be lapped 30 bar diameters unless noted otherwise. Top slab steel shall be lapped over a support wall. Walls greater than 10" in thickness shall have reinforcement on both faces.
3. Construction joints on structures, including SWM risers and weir walls, shall be located as shown or as directed by the City Inspector. All construction joints shall have a 2" x 4" keyway with rubber, neoprene or silicone water stop. Bentonite water stops are not acceptable.
4. The City must approve any changes to the SWM riser structure in advance at least 48 hours prior to ordering of the pre-cast structure. If a pre-cast structure is substituted for a designed cast-in-place structure, the City must approve new anti-flotation computations for the pre-cast structure if the structure has smaller dimensions than the original structure.

Corrugated Metal Pipe used for Stormwater Management storage

1. Corrugated metal pipe shall be aluminized corrugated steel pipe. The pipe and its appurtenances shall conform to AASHTO M-36, delete sheet M-128 and add sheet M-274 using Type II steel with coupling bands. Pipe over 60" shall be 12 gauge with 5" x 1" corrugations. All pipe 60" and less shall be 14 gauge with 2-2/3" x 1/2" corrugations.
2. Aluminized steel pipe that comes in contact with concrete shall be coated with zinc chromate primer.
3. Coupling bands, anti-seep collars, end sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 ml. in thickness.
4. All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars and risers shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled with an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide hugger type band with O-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 24" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs (two on each side of the

lugs). A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24". Gaskets shall be pre-stressed in accordance with manufacturer's installation specifications.

5. Corrugated metal pipe shall be constructed in accordance with MSHA specifications, Sections 303 and 304. Pipe over 60" shall have a minimum 2 feet of cover.
6. All pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support to a minimum depth of 6" below sub-grade.